

Americas

## Surface Sediment Sampling Project-Specific HASP Addendum

**Location:** Surface Sediment Sampling Study Area

**Date:** March 24<sup>th</sup>, 2018

**Prepared By:** Linda Howard, Glen Mejia, Anthony Palmieri, Nicky Moody

**Approved By:** Jennifer Pretare (AECOM), Fred Merrill (AECOM)

### Summary of Surface Sediment Sampling

Surface (0 to 30 centimeter) sediment samples at 659 locations will be collected via a Van Veen hydraulic power grab sampler operated from two aluminum research vessels (RV *Cayuse* [24-foot] and RV *Tieton* [26-foot]) operated by Gravity, a subcontractor to AECOM. All vessel operations and sediment sampling equipment will be operated by Gravity. Gravity will be responsible for operating the following equipment:

- Research vessel (RV *Cayuse* and RV *Tieton*)
- Van Veen power grab sampler

AECOM and Geosyntec staff will provide on-board oversight, document the sampling process, and conduct on-board sample processing of surface sediment samples. On-board sample processing will involve transferring sediment samples to a tub where the sample will be homogenized using a battery-operated hand drill and paint mixer, then transferring samples to smaller containers for transport to the on-shore processing facility for further sample processing, after which they will be shipped to the lab for analysis. Additional AECOM staff will conduct on-shore processing, packaging, and shipping of the samples at AECOM's on-shore facility.

It is assumed that work crews will work 12-hour days for 2 months (with 4 contingency days). Rest days are built in to the schedule. A fatigue management plan will be created if the duration of work exceeds a 14-hour day.

### Team Leads and Supervisors

Organization	Job Title/Role	Name	Cell Phone
Geosyntec	Senior Technical Lead	Anne Fitzpatrick	(b) (6)
AECOM	Site Safety Officer Project Field Coordinator	Nicky Moody	
AECOM	Site Safety Officer	Dave Hose	
Geosyntec	Project Field Coordinator	Keith Kroeger	
Geosyntec	Project Chemist	Julia Klens-Caprio	
AECOM	Project Chemist	Amy Dahl	

**Supplemental List of Personnel, Short-Service Employees (SSE), Subcontractors and their Safety Officers**

(from Programmatic HASP Summary: the Project-Specific HASPs will list all short-service employees, including subcontractors that are scheduled to participate in Project activities)

Organization	Job Title/Role	Name	Cell Phone	SSEs and Safety Officers
Gravity	Gravity Project Manager	Shawn Hinz	(b) (6)	Safety Officer
Gravity	Captain	Mike Duffield		
Gravity	Captain	Rene Trudeau		
Gravity	Captain	Peter Jenkins		
Gravity	Captain	John Schaefer		
Gravity	Deckhands/Scientist	Jeff Wilson		
Gravity	Deckhands/Scientist	Jeff Schut		
Gravity	Deckhands/Scientist	Chad Furulie		
AECOM	Scientist	Mark Tauscher		
AECOM	Scientist	Michaela McCoog		
AECOM	Scientist	Jeremy Haney		SSE (Mentor: Nicky Moody)
AECOM	Scientist	Bruce Cassem		
Geosyntec	Scientist	Jennifer Arblaster		
Geosyntec	Scientist	Alison Clements		

**Supplemental List of Hazard Materials**

(from Section 3.7 Hazard Communications: Hazardous materials that may be encountered as existing environmental or physical/health contaminants will be addressed in the Project-Specific HASPs that will be appended to this Programmatic HASP. The Supervisor or Safety Officer will maintain copies of all SDS on-site and in Project-Specific HASPs appended to this HASP (as Attachment 1). SDS may not be available for locally obtained products, in which case an alternate form of product hazard documentation will be acceptable)

Hazard Materials
Methanol
Alconox
Nitric acid

**Housekeeping and Personal Hygiene**

(from Section 3.9 Housekeeping and Personal Hygiene: Designated Safety Officer for individual study (to be designated in Project-Specific HASPs)

Designated Safety Officer	Organization	Cell Phone
Nicky Moody	AECOM	(b) (6)

**Supplemental List of Competent Persons**

(from Section 5.3.1 Competent Persons: To be identified in the Project-Specific HASP Addendum)

Operations	Organization	Job Title/Role	Name	Cell Phone
Safe Vessel Operations	Gravity	Captain	Mike Duffield	(b) (6)
Safe Vessel Operations	Gravity	Captain	Rene Trudeau	
Safe Vessel Operations	Gravity	Captain	Peter Jenkins	
Safe Vessel Operations	Gravity	Captain	John Schaefer	

**Supplemental List of CPR/First Aid/AED Trained Personnel**

(from Section 12.4 CPR/First Aid/AED Trained Personnel that will be on-site will be identified in the Project-Specific HASPs for each study)

Organization	Job Title/Role	Name	Cell Phone	Training
AECOM	Site Safety Officer Project Field Coordinator	Nicky Moody	(b) (6)	CPR, First Aid, and AED
AECOM	Scientist	Mark Tauscher		CPR, First Aid, and AED
AECOM	Scientist	Michaela McCoog		CPR, First Aid, and AED
AECOM	Scientist	Bruce Cassem		CPR, First Aid, and AED
Geosyntec	Scientist	Alison Clements		CPR, First Aid, and AED

**HASP Addendum Attachments:**

- Attachment 1. AECOM Pre-Job Hazard Assessment**
- Attachment 2. Gravity Health and Safety and Environmental Plan**
- Attachment 3. Vessel Diagrams**
- Attachment 4. Safety Data Sheets**

# Attachment 1. AECOM Pre-Job Hazard Assessment

## Pre-Job Hazard Assessment

S3AM-209-FM4

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
List principal activities involved in the scope of work	Identify each safety or health hazard		Identify engineering and administrative controls and any specific Personal Protective Equipment (PPE) that is required	
ACTIVITY 1 – Mobilize equipment and personnel to study area.	Traffic/driving hazards	10	<ul style="list-style-type: none"> <li>All AECOM drivers must have current driver awareness training (available on AECOM University).</li> <li>All drivers must have current, valid driver's license on their person.</li> <li>Complete pre-use visual inspection. Walk around the vehicle to inspect for potential hazards or mechanical issues before driving.</li> <li>Practice defensive driving and drive in a courteous manner.</li> <li>Seat belts must be worn by the driver and all passengers.</li> <li>Obey all speed limits.</li> <li>Drivers must not use cellular telephones or other communication devices such as two-way radios unless safely parked.</li> <li>Window surfaces must be cleared of any materials such as ice, frost, mud, or water that can impair visibility.</li> <li>Travel with headlights on at all times.</li> <li>Travel during daylight hours when possible.</li> <li>Equip vehicles with: first aid kit, fire extinguisher, flares or triangle, spare tire and jack, cell phone.</li> <li>The project goal is to limit activities to no more than 10 hours/day; contact project manager if work days extend beyond the 10 hours.</li> </ul>	5
	Fatigue	15	<ul style="list-style-type: none"> <li>Extended workdays can be granted; however, workdays shall not exceed 14 hours and extended work weeks, 60 hours/week.</li> <li>For emergency work, a single shift should be limited to 16 hours, and an employee should be off work for at least 12 hours before the next shift starts. If shift work is required, employees should be given sufficient time to get a continuous 7- to 8-hour period of sleep in each 24 hours, and at least 50 hours every 7 days.</li> </ul>	3

## Attachment 1. AECOM Pre-Job Hazard Assessment

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<ul style="list-style-type: none"> <li>Safety Officer and team members will watch and intervene when individuals appear to be fatigued; contact the project manager if a team member appears fatigued.</li> <li>Night work will not occur on this project.</li> <li>A journey management plan will be established for team members traveling &gt;250 miles.</li> </ul>	
	Parking hazards	10	Park in a clear location, back in to parking location to avoid backing out upon departure.	3
	Lifting hazards/muscle strain	6	<ul style="list-style-type: none"> <li>Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>Wear abrasion gloves <u>and safety-toed boots</u> when moving equipment.</li> <li>No personnel should lift more than <u>40-50</u> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> </ul>	3
ACTIVITY 2— Load personnel and equipment onto vessel.	Lack of knowledge of tasks being performed	10	Discuss tasks to be performed by personnel, potential hazards, and control measures.	1
	Water hazards	10	<ul style="list-style-type: none"> <li>Follow all appropriate water safety rules and regulations.</li> <li>Wear Type III or V Personal Flotation Device (PFD) or life jacket.</li> </ul>	4
	Severe weather	9	<p>Assess severe weather hazards using National Oceanic and Atmospheric Administration (NOAA) resources before on-water work:</p> <ul style="list-style-type: none"> <li>Stop work if lightning is &lt;6 miles away (&lt;30 seconds between lightning flash and hearing thunder). If storm is approaching, do not wait for it to arrive before implementing stop work action.</li> <li>Stop Work during wind gusts sustained at 25 mph, and at all times where debris is visible flying in air.</li> <li>Stop work during hail storms; seek shelter inside building or wheelhouse/vessel cabin.</li> </ul>	1

**Attachment 1. AECOM Pre-Job Hazard Assessment**

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
	Lifting hazards/muscle strain	10	<ul style="list-style-type: none"> <li>• Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>• Wear abrasion gloves when moving equipment.</li> <li>• No personnel should lift more than <del>40-50</del> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> <li>• Transfer equipment to people on boat rather than carrying equipment onto boat.</li> </ul>	3
	Vessel boarding hazards	10	<ul style="list-style-type: none"> <li>• Receive vessel operator's training prior to boarding vessel.</li> <li>• Follow vessel operator's instructions for boarding vessel.</li> <li>• Wear appropriate PPE, including correct type of PFD.</li> <li>• Maintain three points of contact when boarding vessel.</li> <li>• Follow vessel operator's instructions for loading equipment onto vessel.</li> </ul>	4
	Pinch points/hand injuries	8	<p>Be aware of hands, feet, arms, and position of all personnel during tool use and equipment handling. Never position a hand where it can be pinched. Examples include:</p> <ul style="list-style-type: none"> <li>• Between lines under tension and hard surfaces</li> <li>• Between vessel and dock</li> <li>• Between equipment and hard surfaces on vessel</li> </ul>	4
	Slips, trips, and falls	8	<ul style="list-style-type: none"> <li>• Wear appropriate footwear with non-slip soles.</li> <li>• Ensure pathways are clear and free of obstruction prior to initiating work, ensure all lines are secure prior to initiating work, and adhere to proper housekeeping practices.</li> <li>• Maintain three points of contact when boarding vessel.</li> </ul>	4
ACTIVITY 3 – Work aboard a research vessel on water.	Slips, trips, and falls	8	<ul style="list-style-type: none"> <li>• Wear appropriate footwear with non-slip soles.</li> <li>• Ensure pathways are clear and free of obstruction prior to initiating work, ensure all lines are secure prior to initiating work, and adhere to proper housekeeping practices.</li> <li>• Maintain three points of contact at all times.</li> </ul>	4
	Fatigue	12	<ul style="list-style-type: none"> <li>• Extended workdays can be granted; however, workdays shall not exceed 14 hours and extended</li> </ul>	2

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Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<p>work weeks, 60 hours/week.</p> <ul style="list-style-type: none"> <li>For emergency work, a single shift should be limited to 16 hours, and an employee should be off work for at least 12 hours before the next shift start. If shift work is required, employees should be given sufficient time to get a continuous 7- to 8-hour period of sleep in each 24 hours, and at least 50 hours every 7 days.</li> <li>Safety Officer and team members will watch and intervene when individuals appear to be fatigued; contact the project manager if a team member appears fatigued.</li> <li>Night work will not occur on this project.</li> </ul>	
	Lines and equipment under tension creating line of fire or pinch point	9	<ul style="list-style-type: none"> <li>Keep body away from lines under tension.</li> <li>Keep as much distance as possible between you and any source of potential energy release.</li> </ul>	2
	Moving parts/pinch points/hand injuries	9	<ul style="list-style-type: none"> <li>Be aware of hands, feet, arms, and position of all personnel during tool use and equipment handling.</li> <li>Never position a hand where it can be pinched if hatch closes, a load releases, or a tool slips.</li> </ul>	2
	Water hazards	10	<ul style="list-style-type: none"> <li>Vessel operator will provide a SH&amp;E Orientation on boating operations prior to departing dock, which will cover the following: man overboard, power loss/disabled boat, fire onboard, medical emergency.</li> <li>Vessel operator will perform a vessel inspection prior to departure.</li> <li>Vessel operator will submit a float plan to the Project Manager (Jenny Pretare) and follow the float plan and communication plan identified in the float plan.</li> <li>Passengers will obey vessel operator's orders at all times.</li> <li>Adhere to all federal, state, and local boating and licensing laws.</li> <li>Work must be performed in accordance with the "Buddy System."</li> <li>PPE: US Coast Guard (USCG)-approved Type III or V PFD or life jacket, sized and adjusted to the wearer, shall be worn by all workers when aboard the research vessel.</li> <li>Confirm vessel has secondary means of propulsion</li> </ul>	2



# Attachment 1. AECOM Pre-Job Hazard Assessment

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<p>such as oars or paddles or backup motor.</p> <ul style="list-style-type: none"> <li>Workers are to remain seated when vessel is in motion. Avoid standing in vessel whenever possible.</li> </ul>	
	Man overboard (MOB)/incapacitated person	10	<p>Vessel operator will provide a SH&amp;E Orientation on boating operations prior to departing dock, which will cover the following: man overboard, power loss/disabled boat, fire onboard, medical emergency. Vessel operator will review USCG MOB procedures:</p> <ul style="list-style-type: none"> <li>No low visibility/night operations will occur.</li> <li>When deploying equipment, do not lean over the boat.</li> <li>When boat is underway, all people must remain in the cabin, seated or standing, while maintaining four points of contact; no work on deck may occur.</li> <li>All staff aboard vessel will be trained in MOB recovery training.</li> <li>Perform safety briefing prior to departure and discuss MOB recovery procedure.</li> <li>Wear Type III or V PFD AT ALL TIMES on board a boat or on dock.</li> <li>Person who observes person fall overboard must keep their eyes on him/her.</li> <li>Immediately cease work operations and commence a rescue procedure.</li> <li>Bring the vessel to the position of the person in the water (as opposed to having the person swim to the boat).</li> <li>Immediately mark MOB location on GPS by "one-button MOB press."</li> <li>Throw a MOB pole marker/raise a MOB flag into the water to denote the location of the person overboard and to alert other boat traffic.</li> <li>Throw PFDs or other floatable items into the water to assist the person overboard.</li> <li>Send a distress call on VHF Channel 16 if person is un-responsive or severely injured.</li> </ul>	3
	Vessel in danger of sinking	10	<p>Vessel operator will be responsible for emergency actions and notifications; however, if the vessel crew is incapacitated the following procedure shall be followed:</p> <ul style="list-style-type: none"> <li>Send a distress call: PAN call over VHF Channel 16 if boat is not in imminent danger.</li> <li>Send a Mayday distress call and repeat until</li> </ul>	4

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Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<p>message is received over VHF Channel 16 if boat is in imminent danger.</p> <ul style="list-style-type: none"> <li>○ Provide name of vessel</li> <li>○ Provide description of vessel</li> <li>○ Provide location of vessel (e.g., latitude/longitude, river mile, landmark, etc.</li> <li>○ Provide count of onboard passengers.</li> <li>○ Provide nature of distress.</li> <li>○ Describe kind of assistance needed.</li> </ul> <ul style="list-style-type: none"> <li>• Turn on the bilge pump to begin pumping water to outside of boat.</li> <li>• Assemble the emergency pump and begin pumping water.</li> </ul>	
	Vessel fire	10	<ul style="list-style-type: none"> <li>• Remove all flammable material from ignition sources.</li> <li>• Communicate with Safety Officer and vessel operator if there will be any new flammable material brought onboard; store only in approved containers. Review SDS for firefighting procedures.</li> <li>• Review fire extinguisher location and quantity and confirm fire extinguishers are charged prior to leaving dock</li> <li>• Remember P.A.S.S: <ul style="list-style-type: none"> <li>○ Pull the Pin</li> <li>○ Aim the fire extinguisher at the base of the fire</li> <li>○ Squeeze the handle</li> <li>○ Sweep the base of fire side to side</li> </ul> </li> <li>• Send a Mayday distress call and repeat until message is received over VHF Channel 16 if boat is in imminent danger. <ul style="list-style-type: none"> <li>○ Provide name of vessel</li> <li>○ Provide description of vessel</li> <li>○ Provide location of vessel (e.g., latitude/longitude, river mile, landmark, etc.</li> <li>○ Provide count of onboard passengers.</li> <li>○ Provide nature of distress.</li> <li>○ Describe kind of assistance needed.</li> </ul> </li> <li>• Inflate life raft/abandon vessel if necessary (e.g., risk of explosion).</li> </ul>	3
	Medical emergency	8	Vessel operator will review location of first aid kit and AED prior to departing the dock. The vessel operator or his/her designee will review how the AED operates with	2

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			<ul style="list-style-type: none"> <li>the crew prior to departing dock.</li> <li>Review first aid kit location and contents prior to departure.</li> <li>If a severe injury occurs, initiate a MAYDAY call.</li> <li>Travel to Swan Island or location identified by responding EMS.</li> <li>After emergency has been addressed, contact project manager and AECOM reporting line (1-800-348-5046).</li> </ul>	
	Heat stress/cold stress	9	<ul style="list-style-type: none"> <li>Begin heat stress/cold stress monitoring as applicable and continue throughout duration of task.</li> <li>Implement heat stress/cold stress prevention procedures, as applicable.</li> <li>Heat stress: drink 8 oz water/hour and use appropriate work/rest schedule as specified in Heat Stress AECOM SH&amp;E Procedure.</li> <li>Cold Weather PPE (&lt;50 degrees F): <ul style="list-style-type: none"> <li>Layers of non-cotton clothing; examples include down, wool, or other synthetic materials to provide insulation when wet</li> <li>Outer layer to break the wind</li> <li>Hat or hardhat liner</li> <li>Insulated footwear/extra socks if boots allow</li> <li>Gloves which allow for insulation and dexterity</li> <li>Hand warmers</li> <li>Emergency set of dry clothing stored in waterproof bag</li> </ul> </li> </ul>	5
	Severe weather	9	<ul style="list-style-type: none"> <li>Assess severe weather hazards using NOAA resources before on-water work</li> <li>Stop work if lightning is &lt;6 miles away (&lt;30 seconds between lightning flash and hearing thunder). If storm is approaching, do not wait for it to arrive before implementing stop work action.</li> <li>Stop Work during wind gusts sustained at 25 mph, and at all times where debris is visible flying in air.</li> <li>Stop work during hail storms; seek shelter inside building or wheelhouse/vessel cabin.</li> </ul>	1
	Other commercial/recreational vessel traffic hazards	10	Adhere to all federal, state, and local boating and licensing laws.	3
ACTIVITY 4 – Use a Van Veen clamshell grab system to collect the	Clamshell operation (Van Veen system)	10	<ul style="list-style-type: none"> <li>Verify that operator is qualified and working in a safe manner.</li> </ul>	3

**Attachment 1. AECOM Pre-Job Hazard Assessment**

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
surface sediment samples.			<ul style="list-style-type: none"> <li>• Ensure that all personnel are familiar with the location of the Emergency Shut-off switches prior to operation and maintain a suitable distance from the operating equipment.</li> <li>• Clamshell (Van Veen) operator needs to complete equipment inspection form daily prior to initiating study activities.</li> <li>• <del>Use appropriate PPE (safety glasses, hard hats, nitrile gloves, abrasion resistant gloves when handling heavy items and rubber safety toed boots. Boot covers can be worn over leather safety-toed boots. If a splash hazard exists, use disposable Tyvek or other impermeable clothing which can be washed and rinsed. Wear Type III or V PFD). Use appropriate PPE (nitrile gloves, abrasion resistant gloves when handling heavy items and safety-toed boots. If a splash hazard exists, use disposable Tyvek or other impermeable clothing which can be washed and rinsed. Wear Type III or V PFD).</del></li> </ul>	
	Moving parts/pinch points/hand injuries	8	Be aware of hands, feet, arms, and position of all personnel during tool use and equipment handling. Never position a hand where it can be pinched if a wheel rotates, a load releases, or a tool slips.	4
ACTIVITY 5 – Process samples on board vessel. Sediment sample will be transferred to a tub, and a drill and paint mixer will be used to homogenize the sample. Smaller samples will then be transferred to sample containers and stored until transported to shore for further processing.	Power tools	6	<ul style="list-style-type: none"> <li>• Employees should work only with tools with which they are appropriately trained and familiar and should receive specific instruction on use and operation of unfamiliar tools.</li> <li>• Use tools only for their designated use and in accordance with manufacturer's specifications.</li> <li>• Use approved tools only. Never modify or use makeshift tools.</li> <li>• Ensure proper ergonomics principles are observed when using power tools.</li> <li>• Avoid placing fingers in danger zones; ensure sufficient clearance in the event the tool slips.</li> <li>• Secure tools when not in use.</li> <li>• Do not allow loose clothing, long hair, loose jewelry, or rings and chains to be worn when working with power tools.</li> </ul>	2
	Potential contaminant exposure	9	<ul style="list-style-type: none"> <li>• The decontamination procedure described in the field sampling plan and summarized below will be followed: <ul style="list-style-type: none"> <li>○ Rinse equipment with river water</li> <li>○ Any water or sediment will be washed into the</li> </ul> </li> </ul>	3

# Attachment 1. AECOM Pre-Job Hazard Assessment

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<p>surface waters near the vicinity of the collection site before proceeding to the next station.</p> <ul style="list-style-type: none"> <li>○ Liquinox (or alternate phosphate-free detergent-bearing liquid wastes from decontamination) will be used to decontaminate equipment which contacts sediment and will be washed overboard</li> <li>○ Rinse with distilled water</li> <li>• Remove and dispose of nitrile gloves following decontamination procedure.</li> <li>• <del>PPE: Nitrile gloves and chemical goggles. If splash hazard exists, disposable Tyvek or other impermeable clothing (e.g. rubber raingear) can be used, washed and rinsed during the decontamination process.</del> <u>PPE: safety glasses, hard hats if overhead hazard exists, nitrile gloves, abrasion resistant gloves when handling heavy items and rubber safety-toed boots. Boot covers can be worn over leather safety-toed boots. If a splash hazard exists, use disposable Tyvek or other impermeable clothing which can be washed and rinsed. Wear Type III or V PFD.</u></li> <li>• Additional information is found in the Task Specific Field Sampling Plan.</li> </ul>	
	Handling and storing acids and solvents	10	<ul style="list-style-type: none"> <li>• Review SDS for specific chemicals at beginning of activity to confirm HAZCOM procedures are implemented.</li> <li>• Project-specific SOPs for high-volume sampling are provided in Appendix B of the FSP.</li> <li>• Wear appropriate PPE, including nitrile gloves and safety glasses and/or chemical goggles.</li> </ul>	3
ACTIVITY 6 – Move sediment samples off vessel by hand once docked.	Lifting hazards/muscle strain/ergonomic hazards	10	<ul style="list-style-type: none"> <li>• Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>• Wear abrasion gloves when moving equipment.</li> <li>• No personnel should lift more than <del>40-50</del> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> <li>• Transfer equipment to people on boat rather than carrying equipment onto boat.</li> </ul>	3

**Attachment 1. AECOM Pre-Job Hazard Assessment**

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
	Vessel offloading hazards	10	<ul style="list-style-type: none"> <li>Follow vessel operator's instructions for leaving vessel.</li> <li>Maintain three points of contact when leaving vessel.</li> <li>Follow vessel operator's instructions for transferring equipment and samples off vessel.</li> </ul>	63
	Potential contaminant exposure	10	<ul style="list-style-type: none"> <li>Use proper tools for decontamination.</li> <li><del>If sample containers break or other potential contaminant exposure exists, wear appropriate PPE for cleanup, including safety glasses with side shields, nitrile gloves, rubber safety-toed boots, or leather safety toed boots with boot covers, use disposable Tyvek or other impermeable clothing which can be washed and rinsed. Wear Type III or V PFD.</del></li> <li>Follow other Standard Operating Procedures (SOPs) for decontamination as specified in the Task Specific Field Sampling Plan.</li> </ul>	3
ACTIVITY 7— Decontaminate equipment.	Lifting hazards/muscle strain	10	<ul style="list-style-type: none"> <li>Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>Wear abrasion gloves when moving equipment.</li> <li>No personnel should lift more than <del>40-50</del> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> </ul>	3
	Potential contaminant exposure	1	<ul style="list-style-type: none"> <li>Use proper tools for decontamination.</li> <li><del>PPE: safety glasses, hard hats if overhead hazard exists, nitrile gloves, abrasion resistant gloves when handling heavy items and rubber safety toed boots. Boot covers can be worn over leather safety-toed boots. If a splash hazard exists, use disposable Tyvek or other impermeable clothing which can be washed and rinsed. Wear Type III or V PFD. Wear nitrile gloves, and chemical goggles during the decontamination process.</del></li> <li>Follow other SOPs for decontamination as specified in the Task-Specific Field Sampling Plan.</li> </ul>	1
	Handling and storing acids and solvents	10	<ul style="list-style-type: none"> <li>Project-specific SOPs for high-volume sampling are provided in Appendix B</li> <li>Wear appropriate PPE, including nitrile gloves and</li> </ul>	3

**Attachment 1. AECOM Pre-Job Hazard Assessment**

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			safety glasses and/or chemical goggles.	
	Safety and spill equipment	10	A spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e., speedy dri, absorbent pads, etc.) will be available on the project study area and positioned for quick and easy access.	3
ACTIVITY 8 – Load/transport samples to warehouse for processing.	Lifting hazards/muscle strain/ergonomic hazards	10	<ul style="list-style-type: none"> <li>• Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>• Wear abrasion gloves when moving equipment. No personnel should lift more than <del>40-50</del> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> </ul>	4
	Driving hazards	10	<ul style="list-style-type: none"> <li>• All drivers must have current, valid driver's license on their person.</li> <li>• Complete pre-use visual inspection - walk around the vehicle to inspect for potential hazards or mechanical issues before driving.</li> <li>• Practice defensive driving and drive in a courteous manner.</li> <li>• Seat belts must be worn by the driver and all passengers.</li> <li>• Drivers must not use cellular telephones or other communication devices such as two-way radios unless safely parked.</li> <li>• Window surfaces must be cleared of any materials such as ice, frost, mud, or water that can impair visibility.</li> <li>• Equip vehicles with first aid kit, fire extinguisher, flares or triangle, spare tire and jack, and cell phone.</li> <li>• Ensure all loads are properly secured.</li> </ul>	5
ACTIVITY 9 – Process sediment samples at warehouse.	Potential contaminant exposure	10	<ul style="list-style-type: none"> <li>• Maintain awareness of potential contaminant exposure and implement avoidance procedures.</li> <li>• <u>Use appropriate PPE: (safety glasses with side shields or chemical goggles if handling preservatives with nitrile gloves. If handling heavy items, abrasion resistant gloves and rubber safety-toed boots. Boot covers can be worn over leather safety-toed boots. If a splash hazard exists, use disposable Tyvek or other impermeable clothing which can be decontaminated). Use appropriate PPE, including nitrile gloves and safety glasses with side shields.</u></li> </ul>	3

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Attachment 1. AECOM Pre-Job Hazard Assessment

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<p><del>Use proper tools for decontamination.</del></p> <p><del>Wear appropriate PPE, including nitrile gloves and safety glasses and/or chemical goggles.</del></p> <ul style="list-style-type: none"> <li>• Use proper tools for decontamination.</li> <li>• Follow other SOPs for decontamination as specified in the Task-Specific Field Sampling Plan.</li> </ul>	
	Safety and spill equipment	10	A spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e., speedy dri, absorbent pads, etc.) will be available on the project study area and positioned for quick and easy access.	3
	Handling acid and solvents used for cleaning high volume sampling supplies	10	<ul style="list-style-type: none"> <li>• Project-specific SOPs for high-volume sampling are provided in Appendix B of the FSP.</li> <li>• <u>Use appropriate PPE: (safety glasses with side shields or chemical goggles if handling preservatives with nitrile gloves. If handling heavy items, abrasion resistant gloves and rubber safety-toed boots. Boot covers can be worn over leather safety-toed boots. If a splash hazard exists. Use disposable Tyvek or other impermeable clothing which can be decontaminated). Wear appropriate PPE, including nitrile gloves and safety glasses and/or chemical goggles.</u></li> </ul>	3
ACTIVITY 10 – Ship sediment samples to lab for processing.	Lifting hazards/muscle strain	10	<ul style="list-style-type: none"> <li>• Practice proper lifting and manual handling of materials and equipment, lift with the knees, avoid twisting, and seek assistance or employ additional handling equipment as needed.</li> <li>• Wear abrasion gloves when moving equipment.</li> <li>• No personnel should lift more than <del>40-50</del> pounds without assistance or mechanical aid. <u>Request assistance below 50 pounds as necessary.</u> Know what items weigh before lifting or test them carefully.</li> </ul>	3
	Driving hazards	10	<ul style="list-style-type: none"> <li>• All drivers must have current, valid driver's license on their person.</li> <li>• Complete pre-use visual inspection. Walk around the vehicle to inspect for potential hazards or mechanical issues before driving.</li> <li>• Practice defensive driving and drive in a courteous manner.</li> <li>• Seat belts must be worn by the driver and all passengers.</li> <li>• Drivers must not use cellular telephones or other communication devices such as two-way radios</li> </ul>	5

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## Attachment 1. AECOM Pre-Job Hazard Assessment

Principal Activities	Potential Safety/Health Hazards	Initial Risk Rating	Control Measures	Final Risk Rating
			<ul style="list-style-type: none"> <li>unless safely parked.</li> <li>Window surfaces must be cleared of any materials such as ice, frost, mud, or water that can impair visibility.</li> <li>Equip vehicles with first aid kit, fire extinguisher, flares or triangle, spare tire and jack, and cell phone.</li> <li>Ensure all loads are properly secured.</li> </ul>	

**Attachment 1. AECOM Pre-Job Hazard Assessment**

**SPECIAL REQUIREMENTS**

Step #	Equipment to be Used	Inspection Requirements	Training Requirements
	List equipment to be used in work activity	List inspection/permit requirements for work activity	List training requirements including hazard communication
1.	Research vessel	Perform boat inspection prior to use.  Complete and submit float plan prior to use.	USCG-licensed vessel operator or equivalent. MOB recovery with limited assistance. First Aid/CPR Training. Approved boating safety course. <a href="#">HAZWOPER 40-hour with 8-hour refresher</a>
2.	Van Veen clamshell grab system	Daily inspection before use. Machinery and mechanized equipment inspection form completed prior to project start.	Employees operating equipment shall be experienced or trained in the specific use of the equipment for the purpose of the sampling effort. Only Gravity crew will operate clamshell grab system. <a href="#">HAZWOPER 40-hour with 8-hour refresher</a>
3.	Power tools (drill and paint mixer)	Inspect prior to use. Do not use any tool that is defective or has missing parts.	Employees operating power tools shall be familiar with the use and operation of the equipment or have received specific instruction on its use and operation.
4.	Emergency equipment provided by vessel operator (Gravity): <ul style="list-style-type: none"> <li>• GPS</li> <li>• Satellite phone (if cell phone service does not cover entire survey area)</li> <li>• VHF radios will remain on Channel 16 (for hailing/distress calls) at all times to listen for boat traffic, alerts, etc. unless actively keying/communicating on another channel with another party</li> <li>• Rescue rope in throw bag (commercially available)</li> <li>• Air horns and/or whistles</li> <li>• Waterproof flashlight</li> <li>• *Secondary "kicker" motor and *alternate means of propulsion (oars or paddles)</li> <li>• *Bailer (if bilge pump is not provided, bucket, or similar device should be on board)</li> <li>• *Duct tape</li> <li>• *Length of rope for securing boat on shore or alongside larger vessel</li> <li>• *Functional bilge pump/emergency pump</li> <li>• *Anchor with five to seven times as much line as the depth of water plus the distance from the surface of the water to where the anchor will attach to the bow</li> <li>• *Type 4 throwable ring or cushion</li> <li>• *Type BC fire extinguisher (10 pound) if extra fuel is carried in portable containers.</li> </ul> * Required minimum equipment to be provided by vessel	Inspect all equipment for battery life and integrity during the pre-trip boat inspection.	Personnel should be familiar with all emergency equipment.

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## Attachment 1. AECOM Pre-Job Hazard Assessment

	provider (chartered boat); project Field Coordinator to ensure remaining equipment is carried on board.		
5.	<a href="#">Photoionization detector (PID)</a>	<a href="#">Daily Calibration</a>	<a href="#">Training in PID usage</a>
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9.	Click here to enter text.	Click here to enter text.	Click here to enter text.

## Attachment 1. AECOM Pre-Job Hazard Assessment

Instructions and Risk Matrix (PLACEHOLDER)